SECTION 9. 327 IAC 8-13-9 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-13-9 Chemical Treatment

Authority:

Affected:

Sec. 9. (a) General requirements for a public water system that use chemical treatment in order to ensure that the finished water supplied to consumers does not exceed the maximum contaminant levels (MCL), the maximum residual disinfectant levels (MRDL), the action levels, or the treatment techniques contained in 327 IAC 8-2, 327 IAC 8-2.5 or 327 IAC 8-2.6 are as follows:

(1) Feed equipment requirements are as follows:

(A) Chemical feeders shall be:

(i) accessible for repair and maintenance; and

(ii) protected against dust hazard.

(B) Chemical feeders, the chemical storage area, and feed equipment shall be conveniently located as near as practical to the feed point and near points of application to minimize length of feed lines.

(C) Feed equipment shall only be operated when there is flow past the point of application.

(D) Chemical feed rates shall be proportional to flow or adjusted as necessary to account for water quality conditions.

(E) A method of measuring chemical usage shall be provided for all chemicals.

(F) A separate feeder shall be used for each chemical applied.

(G) Where disinfection is required, backup disinfection equipment shall be provided where necessary to meet contact time and disinfectant residual when operating conditions do not allow for the repair of the chlorinator during off-pumping periods.

(2) Equipment shall be installed and operated at the water supply to comply with the disinfectant residual requirements of this section.

(3) Piping identification requirements are as follows:

(A) A water treatment facility shall have the means to clearly identify visible piping in a water treatment facility by way of labels, legends, colors, color coding as described in Recommended Standards for Water Works 2.14, or other approved standards. A consistent standard shall be used throughout the system.

(B) Exposed potable water lines shall be clearly and permanently identified where dual water lines or pressure sewer systems exist.

(4) Chemical storage and handling requirements are as follows:

(A) All chlorine containers, full, empty, or in use, shall be restrained in a secure position to prevent leakage, damage, or movement.

(B)Feed stock solution must be maintained in such a manner that prevents biological growth.

(C) Corrosion-resistant containers shall be provided for solution tanks and feeders. Existing equipment may be used as long as the integrity is maintained.

(D) Appropriate personal protection equipment must be provided. Material Safety Data Sheets or manufacturer's recommendations for handling products must be available where chemicals are stored or handled.

(E) Operator safety must be practiced according to Recommended Standards for Water Works and other applicable requirements.

(b) Factors in determining chlorine demand are as follows:
(1) pH.
(2) Water temperature.
(3) Contact time.
(4) Presence in the water of substances having chlorine demand such as hydrogen sulfide, iron, manganese and nitrogenous compounds including ammonia.
(5) Supplemental treatment such as aeration which reduces chlorine demand.
(6) Natural organic matter, Total organic carbon, suspended solids, and turbidity.

(c) Requirements for clearwells used for disinfection are as follows:
(1) When finished water storage is used to provide proper contact time for disinfection, documentation shall be maintained and available to assure adequate detention time under all operating conditions.
(2) Residual levels of total chlorine shall be maintained at least at one (1) milligram per liter or at a level that will achieve the necessary contact time at or prior to the first customer.

(d) Specific requirements for chlorination are as follows:
(1) Chlorination equipment shall be:

(A) Capable of maintaining a minimum free chlorine residual of twenty-hundredths (0.20) milligram per liter or a minimum total chlorine residual of one and zero-tenths (1.0) milligram per liter in all parts of the distribution system.

(B) Capable of feeding chlorine to the water being treated at a dosage rate of at least four and zero-tenths (4.0) milligrams per liter except when the water has a high chlorine demand as determined by subsection (b).

(2) Continuous disinfection of water drawn from groundwater sources may be required by the commissioner if water quality data, well construction, or system construction indicates a potential health hazard.
(3) Disinfection is to supplement and not replace proper well location, construction, and source protection.
(4) Testing for free and total chlorine residual shall be completed daily, when the system is in operation, at the plant tap, and in the distribution system according to the site sample plan. A free and total chlorine residual test shall be completed and recorded on all bacteriological sample reports prior to collecting the bacteriological sample.

(5) The commissioner may require any of the following:

(A) A minimum contact time for all public water systems per 327 IAC 8-2-1(15) and 327 IAC 8-2-1(19).

(B) Additional chlorination disinfection.

(C) Other disinfection methodology.

(6) Distribution residual for ground water systems shall be maintained at a minimum of twenty-hundredths (0.20) milligram per liter free chlorine. The commissioner may require an increase in disinfectant residuals based on bacteriological samples that demonstrate the need for increased residual or according to 327 IAC 8-2-8.6 (1) thru (4).

(7) If residual cannot be maintained, operational changes shall be made or additional chlorination facilities shall be installed and operated.

(e) Specific requirements for treating with chloramines are as follows:

(1) Equipment used for the production for chloramines shall be capable of maintaining a minimum of one and zero-tenths (1.0) milligram per liter total chlorine or a maximum of four and zero-tenths (4.0) milligrams per liter in all active parts of the distribution system.

(2) Continuous disinfection of water drawn from groundwater sources may be required by the commissioner if water quality data, well construction, or system construction indicates a potential health hazard.

(3) Disinfection is to supplement and not replace proper well location, construction, and source protection.

(4) Testing for chloramine residual shall be completed daily, when the system is in operation, at the plant tap, and in the distribution system according to the site sample plan. A chloramine residual sample shall be completed and recorded on all bacteriological sample reports prior to collecting the bacteriological sample.

(5) The commissioner may require any of the following:

(A) A minimum contact time for all public water systems per 327 IAC 8-2-1(15) and 327 IAC 8-2-1(19).

(B) Additional chloramine disinfection.

(C) Other disinfection methodology.

(6) Distribution residual concentration shall be maintained for all groundwater systems at no less than one and zero-tenths (1.0) milligram per liter total chlorine or according to 8-327 IAC 8-2-8.6 (1) thru (4). The commissioner may require an increase in disinfectant residual based on bacteriological samples that demonstrate the need for increased residual.

(7) If residual cannot be maintained, operational changes shall be made or additional disinfection facilities shall be installed and operated.

(8) Plant effluent residual concentration shall be maintained at no less than one and zero-tenths (1.0) milligram per liter total chlorine.

(9) All samples for free and total chlorine shall be analyzed within eight (8) hours after collection.

(10) A Public Notice describing the adverse effects of using chloramines shall be given to all customers in the Consumer Confidence Report or by continuous posting at the public water systems as determined by the commissioner and shall include but is not limited to the following:

(A) Potential effects of chloramines in the water for fish tanks or ponds.
(B) Potential health effects of patients on dialysis.

(f) Specific requirements for treating with chlorine dioxide are as follows:
(1) Equipment used for the production for chlorine dioxide shall be:
(A) capable of maintaining a minimum seven-hundredths (0.07) milligram per liter chlorine dioxide or a maximum eight-tenths (0.8) milligram per liter in all active parts of the distribution system; and
(B) capable of feeding chlorine dioxide to the water being treated at a dosage rate of two and zero-tenths (2.0) milligrams per liter.
(2) Continuous disinfection of water drawn from groundwater sources may be required by the commissioner if water quality data, well construction, or system construction indicates a potential health hazard.
(3) Disinfection is to supplement and not replace proper well location, construction, and source protection.
(4) Testing for chlorine dioxide residual shall be completed daily, when the system is in operation, at the plant tap, and in the distribution system according to the site sample plan. A chlorine dioxide residual test shall be completed and recorded on all bacteriological sample reports prior to collecting the bacteriological sample.
(5) The commissioner may require any of the following:
(A) A minimum contact time for all public water systems per 327 IAC 8-2-1(15) and 327 IAC 8-2-1(19).
(B) Additional chlorine dioxide disinfection.
(C) Other disinfection methodology.
(6) Distribution residual concentration shall be maintained at no less than seven-hundredths (0.07) milligram per liter chlorine dioxide or according to 8-327 IAC 8-2-8.6 (1) thru (4).
(7) If residual cannot be maintained, operational changes shall be made or additional disinfection facilities shall be installed and operated.
(8) Plant effluent residual concentration shall be maintained at no less than seven-hundredths (0.07) milligram per liter chlorine dioxide.
(g) Disinfectant operation records must be kept as follows:
(1) A copy of the daily operating report records signed by the certified operator in responsible charge shall be submitted to the commissioner ten (10) days after the end of each month. These operating reports shall show the following:
(A) Name of Chemical.
(B) Quantity of water treated.
(C) Type of disinfectant used.
(D) Quantity of disinfectant fed.
(E) Both free and total disinfectant residual test results from locations in the distribution system and plant if applicable.
(2) An individual set of records shall be maintained when more than one source of water with separate disinfectant equipment is used. Records shall be maintained for each booster station.

(3) A copy of the daily operating report shall be maintained by the certified operator in responsible charge of the public water system.

(4) Records for all disinfectant residuals shall be kept for a period of five (5) years.

(5) Records for all chemical feed shall be kept for a period of five (5) years.

(h) The commissioner may approve other forms of disinfection provided that there is some type of daily measurement in the distribution system to determine the effectiveness of the disinfection.

(i) Disinfection requirements for Consecutive Communities are as follows:

(1) Consecutive Community water supplies are required to monitor for disinfectant concentration at the entry point and throughout the distribution system.

(2) The commissioner may require disinfection facilities to be installed and used:

(A) whenever the residual in any part of the distribution system cannot be maintained at the residuals for chlorine, chloramines or chlorine dioxide;

(B) as specified in 327 IAC 8-13-9; or

(C) if daily operating report records of chlorine, chloramines or chlorine dioxide residuals are not kept or submitted to the commissioner.

(j) If it is determined by the commissioner that the residual levels for chlorine, chloramines, and chlorine dioxide are not performing sufficiently to their intended use, the system shall be required to increase those levels or take other steps to ensure that water is adequately disinfected.

(k) The commissioner may approve other forms of disinfection that have not developed extensive experience or records of use in the state of Indiana, provided that the applicant submits evidence that the installation, process, or technique will produce drinking water of satisfactory quality, demonstrate a way to measure a disinfection residual, and maintain normal operating pressure at the peak operating flow rate in accordance with this article.

(l) All community water systems, nontransient noncommunity water systems with susceptible populations, and all transient noncommunity water systems that employ complex treatment as determined by the commissioner shall disinfect unless the systems meet all of the following requirements to be considered exempt from disinfection:

(1) The population served by a community water system does not exceed five hundred (500) individuals based upon the latest census figures or complete records of individuals served.

(2) Evaluation of vulnerability to bacteriological sources will be based on the driller's log, visual inspection of the wells, general geology of the area, and results of bacteriological analyses performed on raw water bacteriological samples. Systems which do not have this data may apply for an exemption as long as bacteriological results are satisfactory.

(3) The system shall not have a history of persistent or recurring contamination as indicated by bacteriological results which show violation of the distribution water quality requirements for the most recent five (5) year period. Verification of

vulnerability to bacteriological sources will be based on a three (3) year compliance period. The most recent twelve (12) months will be weighted more heavily. New systems without this data may apply for an exemption based on available bacteriological samples.

(4) The system shall not provide any raw water treatment other than fluoridation treatment or softening. This will be verified by facility inspection.

(m) Disinfection exemptions are valid until revoked. A disinfection exemption shall be revoked immediately without prior notice if a system fails to meet any of the exemption requirements under subsection (l). An application for a Construction Permit for the installation of disinfectant equipment shall be made within sixty (60) days following revocation. Disinfection equipment shall be installed and a properly certified operator shall be retained within one hundred twenty (120) days after the Construction Permit has been approved. Any of the following conditions will result in revocation:

(1) Failure to maintain an active program of educating water consumers on prevention of contamination.

(2) Failure to have a certified operator or registered person for more than fifteen (15) days.

(3) Failure to submit bacteriological samples as required by 327 IAC 8-2-8 during more than three (3) months of the past twelve (12) months or for two (2) consecutive sampling periods.

A public water system aggrieved by the imposition of disinfectant revocation may appeal the decision of the commissioner at a hearing held in accordance with IC 4-21.5.

(n) The commissioner may require systems that are not mentioned in subsection (l) to disinfect if one of the following occurs:

(1) Four (4) total coliform positive distribution samples in any four (4) quarter monitoring period or twelve (12) month period.

(2) Two (2) fecal coliform positive distribution samples in any four (4) quarter monitoring period or twelve (12) month period.

(3) The design of the well, distribution, or water treatment is determined to continually contribute to coliform positive samples.

(o) All chemicals that are being added to the public water system shall meet the following requirements:

(1) Chemicals shall be added to the water system per manufacturer's recommendation or by the Recommended Standards for Water Works.

(2) Testing equipment shall be provided where applicable for determining the effectiveness of the chemical treatment.

(p) Preventive maintenance inspections shall be performed on a routine basis on all equipment according to the requirements of the manufacturer's recommendations or if determined otherwise by the commissioner.

(q) All chemicals shall be handled in accordance with 327 IAC 8-1 Public Water Supply Direct Additive and Indirect Additive Standards.

(r) If a system is reclassified due to any of the circumstances mentioned in 327 IAC 8-13-9 (l)(6), they shall be notified according to 327 IAC 8-12-2.5 (c) and required to employ a person that meets the requirements of 327 IAC 8-12-1 (1).